VMmark® 3.0 Results

Vendor and Hardware Platform: Fujitsu Server PRIMERGY RX1330 M4 Virtualization Platform: VMware ESXi 6.5 U2 GA Build 8294253 VMware vCenter Server : VMware vCenter Server 6.7.0d Build 9451876	VMmark 3.0 Score = 1.41 @ 1 Tile

Number of Hosts: 3	Uniform Hosts [yes/no]: yes	Total sockets/cores/threads in test: 3/18/36

Tested By: Fujitsu	Test Date: 10-26-2018

Performance Section Performance	Configuration Section Configuration	Notes Section Notes for Workload

Performance

	weathervane			weathervaneE			dvdstoreA			dvdstoreB			dvdstoreC			
TILE_0	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(nRT|MaxPctF)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	Actual	Ratio	QoS(ms)	GM
p0	3604.99	1.00	0.26 | 0.00	573.28	1.00	0.27 | 0.00	1219.08	1.66	268.53	922.05	1.84	298.98	676.80	1.95	319.23	1.43
p1	3597.28	1.00	0.24 | 0.00	572.89	1.00	0.35 | 0.00	1210.00	1.65	279.32	862.58	1.72	317.05	641.30	1.85	345.35	1.39
p2	3593.20	1.00	0.30 | 0.06	571.95	1.00	0.32 | 0.04	1208.47	1.65	286.44	944.08	1.89	319.68	698.80	2.01	343.91	1.44

p0_score:	1.43
p1_score:	1.39
p2_score:	1.44

Infrastructure_Operations_Scores:	vMotion	SVMotion	XVMotion	Deploy
Completed_Ops_PerHour	28.50	28.00	21.00	12.00
Avg_Seconds_To_Complete	6.19	76.79	100.04	260.55
Failures	0.00	0.00	0.00	0.00
Ratio	1.10	1.56	1.17	1.50
Number_Of_Threads	1	1	1	1

Summary	Run_Is_Compliant		Turbo_Setting:0
	Number_Of_Compliance_Issues(0)*		Median_Phase(p0)
Unreviewed_VMmark3_Applications_Score	1.43		
Unreviewed_VMmark3_Infrastructure_Score	1.31		
Unreviewed_VMmark3_Score	1.41		

Configuration

Virtualization Software
Hypervisor Vendor,

VMware ESXi 6.5 U2 GA, Build 8294253 / 05-03-2018

Product, Version, and Build / Availability Date (MM-DD-YYYY)	
Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY)	VMware vCenter Server 6.7.0d, Build 9451876 / 08-14-2018
Supplemental Software	None
Servers	
Number of Servers in System Under Test (all subsequent fields in this section are per server)	3
Server Manufacturer and Model	Fujitsu Server PRIMERGY RX1330 M4
Processor Vendor and Model	Intel Xeon E-2186G
Processor Speed (GHz)	3.8
Total Sockets/Total Cores/Total Threads	1 Socket / 6 Cores / 12 Threads
Primary CPU Cache	32 KB I + 32 KB D on chip per core
Secondary CPU Cache	256 KB I+D on chip per core
Other CPU Cache	12 MB I+D on chip per chip
BIOS Version	V5.0.0.13 R1.0.0 for D3675-A1x
Memory Size (in GB, Number of DIMMs)	64, 4
Memory Type and Speed	16GB 2Rx8 DDR4 2666MHz UDIMM
Disk Subsystem Type	FC SAN
Number of Disk Controllers	1
Disk Controller Vendors and Models	Fujitsu PRAID EP400i
Total Number of Physical Disks for Hypervisor	1
Disk Vendors, Models, Capacities, and Speeds	SEAGATE, ST1000NX0423, 1TB, 7200 RPM SATA 3.0 6Gb/S
Number of Host Bus Adapters	1
Host Bus Adapter Vendors and Models	Emulex LightPulse LPe31002-M6 2-Port 16Gb
Number of Network Controllers	2
Network Controller Vendors and Models	Intel(R) Ethernet Controller X710 for 10GbE SFP+ Intel Corporation I210 Gigabit Network Connection
Other Hardware	None
Other Software	None
Hardware Availability Date (MM-DD-YYYY)	11-13-2018
BIOS Availability Date (MM-DD-YYYY)	09-14-2018
Software Availability Date (MM-DD-YYYY)	08-31-2018
Network	
Network Switch Vendors and Models	1 x Fujitsu SR-X340TR1 1 x Fujitsu ET-7648BFERA-FOS
Network Speed	1Gbps for SUT management, 10Gbps for VMotion, Clients and VMs
Storage	

Array Vendors, Models, and Firmware Versions	1 x Fujitsu Server PRIMERGY TX2560 M2, Firmware V5.0.0.11 R1.7.0 for D3289-B1x
Fibre Channel Switch Vendors and Models	Brocade 6510
Disk Space Used	4TB
Array Cache Size	1GB for storage server OS; no cache used for SUT datastores
Total Number of Physical Disks Used	1 x SAS-HDD(for OS), 2 x PCIe-SSD
Total Number of Enclosures/Pods/Shelves Used	1
Number of Physical Disks Used per Enclosure/Pod/Shelf	1 x SAS-SSD and 2 x PCIe-SSD
Total Number of Storage Groups Used	0
Number of LUNs Used	8
LUN Size and Number of Disks Per LUN	Details in section Storage Notes
RAID Type	RAID 0 for OS drive
Number of Members per RAID Set	1
Disk Vendors, Models, and Speeds	1 x Toshiba PX02SMF040 400GB SAS SSD 2 x Fusion ioMemory PX600 2.6TB PCIe SSD
Datacenter Management Server	
System Model	Fujitsu Server PRIMERGY RX2530 M2
Processor Vendor and Model	Intel Xeon E5-2698 v4
Processor Speed (GHz)	2.2
Total Sockets/Total Cores/Total Threads	1 Socket / 20 Cores / 40 Threads
Memory Size (in GB, Number of DIMMs)	Hypervisor: 64GB, 8
Network Controller(s) Vendors and Models	Emulex OneConnect Oce14000 1GbE Dual Port Adapter
Operating System, Version, Bitness, and Service Pack	Hypervisor: VMware ESXi 6.7 EP 02a Build 9214924
Virtual Center VM Number of vCPUs	4
Virtual Center VM Virtual Memory (in GB)	16
Virtual Center VM Operating System, Version, Bitness, and Service Pack	VMware vCenter Server Appliance 6.7.0d Build 9451876
Other Hardware	None
Other Software	None
Clients	
Total Number of Virtual Clients / Virtual Client Hosts	2 / 1
System Model(s)	Fujitsu PRIMERGY RX2530 M2
Processor Vendor(s) and Model(s)	ClientHost1: Intel Xeon E5-2699 v4
Processor Speed(s) (GHz)	ClientHost1: 2.2
Total Sockets/Total Cores/Total Threads	2 Sockets / 44 Cores / 88 Threads
Memory per Virtual Client Host	256 GB
Network Controller(s) Vendors and Models	Emulex OneConnect Oce14000 1GbE Dual Port Adapter Emulex OneConnect Oce14000 10GbE Dual Port Adapter
Virtual Client Networking Notes	1 virtual adapter for management, 1 virtual adapter for workload traffic
Virtual Client Storage Notes	1 x 300GB SAS 10K TOSHIBA AL14SEB03EN HDD with RAID 0 for Client Host OS 2 x 400GB SAS 12G TOSHIBA PX02SMF040 SSD with RAID 0 for Client VMs
Other Hardware	None

Notes for Workload

Virtualization Software Notes

- CDROM removed for all VMs (default enabled)
- Config.HostAgent.log.level set to warning (default info)
- CPU and Memory shares set to high for all DS3DB VMs (default normal)
- Floppy removed for all VMs (default enabled)
- Logging disabled for all VMs (default enabled)
- Logical CPU configuration changed for multi-cpu VMs to 1 socket with multiple cores, except Client VM (default: Single core per socket)
- Syslog.global.defaultSize set to 112 (default 1024)
- CPU shares set to low for all Standby VMs (default normal)
- vSphere DRS Migration Threshold set to Fully Automated level 2
- Vpx.Vpxa.config.log.level set to warning (default verbose)

  Changes in esx.conf:

- /adv/Cpu/CreditAgePeriod = 1000 (default 3000)
- /adv/Cpu/HTWholeCoreThreshold = 0 (default 800)
- /adv/DataMover/HardwareAcceleratedInit = 0 (default 1)
- /adv/DataMover/HardwareAcceleratedMove = 0 (default 1)
- /adv/Mem/CtlMaxPercent = 0 (default 65)
- /adv/Mem/ShareScanGHz = 0 (default 4)
- /adv/Numa/LTermFairnessInterval = 0 (default 5)
- /adv/Numa/MigImbalanceThreshold = 57 (default 10)
- /adv/Numa/PageMigEnable = 0 (default 1)
- /adv/Numa/SwapLoadEnable = 0 (default 1)
- /adv/Numa/SwapLocalityEnable = 0 (default 1)
- /adv/Disk/ReqCallThreshold = 1 (default 8)
- /adv/Disk/IdleCredit = 64 (default 32)
- /adv/Power/CpuPolicy = High Performance (default balanced)
- /adv/VMFS3/HardwareAcceleratedLocking = 0 (default 1)
- /adv/Mem/VMOverheadGrowthLimit = 0 (default 4294967295)
- /adv/UserVars/HostClientCEIPOptIn = 1 (default 0)

Server Notes

- Server BIOS settings:
  - Turbo Boost Technology: Enabled (Intel Turbo Boost up to 4.7GHz, default Enabled)

Networking Notes

- vSwitch Configuration:
  - vSwitch0 for Service Console on vmnic3 at 1Gb/s
  - vSwitch1 for all workload on vmnic0 at 10Gb/s
  - vSwitch2 for vMotion connection on vmnic1 at 10Gb/s

Storage Notes

- First Fujitsu Server PRIMERGY TX2560 M2 configured as a Fibre Channel Target:

  - Hardware details:
    - 2 x Intel Xeon E5-2698 v4@2.2GHz processors
    - 256GB RAM (16 x 16 GB dual rank PC4-19200 Registered DDR4 / 2400 MHz DIMMs)
    - 1 x QLogic QLE2672 Dual Port 16Gb FC HBA used as FC target controller
    - 1 x Fujitsu RAID SAS Controller with 1GB Cache (D3108)
    - 1 x 400GB SAS-SSD Toshiba PX02SMF040
    - 2 x Fusion ioMemory PX600 2.6TB PCIe SSD

  - Software details:
    - Operating System: SUSE Linux Enterprise Server 12 SP2 - 4.4.21-69-default (64-bit)
    - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 12 SP2)

  RAID configuration:

  - SAS-SSD 1:
    - LUN 1: Storage system OS (400GB, this LUN is not counted in the Storage section)

  - First PCIe-SSD:
    - LUN 1: DS3DB, DS3WebA, DS3WebB, DS3WebC for tiles 0 (600GB)
    - LUN 2: AuctionDB, ElasticLB for tiles 0 (600GB)
    - LUN 3: vmmark3-template-053117 (400GB)
    - LUN 4: Deploy Lun (400GB)

  - Second PCIe-SSD:
    - LUN 1: AuctionWebA, AuctionWebB, AuctionAppA, AuctionAppB, AuctionLB, AuctionMSQ, Standby, ElasticWebA, ElasticWebB, ElasticAppA, ElasticAppB for tiles 0 (600GB)
    - LUN 2: AuctionNoSQL, ElasticDB for tiles 0 (600GB)
    - LUN 3: SVmotion Target (400GB)
    - LUN 4: XVmotion Target Lun (400GB)

  - All LUNs were configured as block devices; no system memory was used for caching

Datacenter Management Server Notes

- Virtual Center realized as a VM running on a dedicated Hypervisor system:
  - Number of vCPUs: 4 (Four vSocket)
  - Size of vRAM: 16GB
- The host operating system VMware ESXi 6.7.0 EP 02a Build 9214924 was installed using 'Fujitsu Custom Image for VMware ESXi 6.7.0 EP 02a' named VMware-ESXi-6.7.0-9214924-Fujitsu-v451-1.iso

Operating System Notes

VMware ESXi 6.5 U2 GA, Build 8294253 was installed using 'Fujitsu Custom Image for VMware ESXi 6.5 U2' named VMware-ESXi-6.5.0.update02-8294253-Fujitsu-v420-1.iso

Software Notes

None

Client Notes

Client Host1: Client0,PrimeClient

Changes in esx.conf:

- /adv/Power/CpuPolicy = "static" (default balanced)
- /adv/UserVars/SuppressShellWarning = 1 (default 0)

Other Notes

- TileDelay set to 40 (default: 60)
- VCscratchDir set to "/root/VMmark3/results/scratch" (default: "/root/VMmark3/samples/")

Meltdown/Spectre Mitigations

CVE-2017-5754 (aka "Meltdown")

- ESXi: mitigation present (ESXi 6.5 U2 GA, Build 8294253)
- Guest OS: no mitigation present

CVE-2017-5753 (aka "Spectre variant 1")

- ESXi: mitigation present (ESXi 6.5 U2 GA, Build 8294253)
- Guest OS: no mitigation present

CVE-2017-5715 (aka "Spectre variant 2")

- Server Firmware: mitigation present (BIOS version: V5.0.0.13 R1.0.0 for D3675-A1x)
- ESXi: mitigation present (ESXi 6.5 U2 GA, Build 8294253)
- Guest OS: no mitigation present

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